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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,759	08/08/2006	Marco Ortalda	294467US0PCT	2938
22850 7590 08/04/2009 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER NEGRELLI, KARA B				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
08/04/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/588,759

**Applicant(s)**

ORTALDA, MARCO

**Examiner**

KARA NEGRELLI

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-7 and 9-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**TIN AND TRANSITION METAL FREE POLYURETHANE FOAMS**

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 209, 2009 has been entered.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5-7, 10-11, and 15-16 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Cageao et al. (US 5,770,674) and further in view of Leckhart et al., (US 4,584,362).

3. Cageao et al. teach a polyurethane composition produced using the RIM process. The composition comprises a polyisocyanate (column 4, lines 26-28), an

isocyanate reactive compound (column 4, line 29), and preferably from 0.5 to 5% of at least one catalyst (column 4, lines 48-50). The catalyst can comprise from 0.5 to 5% by weight of a metal carboxylate, (such as bismuth carboxylates, including bismuth neodecanoate, column 14, lines 37-39), and from 0.0 to 5% by weight of a tertiary amine catalyst (column 5, lines 31-49). Cageao et al. disclose an optional third catalyst comprising tin. Because the tin catalyst is optional, bismuth carboxylate can be added as the sole organic metal catalyst. The amount total amount of catalyst present, based on the amount of catalyst and isocyanate reactive component, is from 0.5 to 5% by weight (column 5, lines 31-49). The amounts of bismuth carboxylate catalyst and tertiary amine catalyst disclosed by Cageao et al. fall within the instantly claimed ratio range(s) (instant claims 3 and 16).

4. The polyurethane compositions of Cageao may comprise the same components in the same amounts used to produce a flexible polyurethane, the same product, as the instantly claimed invention. Therefore, one of ordinary skill in the art would reasonably conclude that when such components are used in these amounts, as Cageao teaches as an embodiment, the resultant polyurethane will have the same tear propagation resistance, shore A hardness, and density which is claimed in instant claim 1. Case law holds that a material and its properties are inseparable. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

5. Cageao et al. do not expressly teach that the polyurethane foam is used to produce a "shoe sole", such a phrase is a use without any defining structure (for example a layer or film can read on the claimed shoe sole). However, the present

claims fail to contain any limitations concerning the structure of what the "shoe sole" is, therefore the claims fail to distinguish themselves from the prior art. The composition of Cageao et al. may comprise components which are identical to the components of the instantly claimed invention, and a structure which can be the claimed shoe sole. As Leckhart et al. (US 4,584,362) shows, polyurethane elastomers which can be used as gaskets (as taught by Cageao et al.), which can also be used as a shoe sole (column 25-34). Because of favorable rheology of the elastomer formation, they can be used to form intricate and varying forms (Leckhart et al., (US 4,584,362, column 1, lines 25-30). Therefore, it would have been obvious to one of ordinary skill in the art to use the composition of Cageao et al. as a shoe sole.

6. Claims 1-2, 4-7, 9-16, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Volkert et al. (US 6,331,577) and further in view of Burckhardt et al. (US 2006/0180274).

7. Volkert et al. teach a flexible, integral, polyurethane foam (column 2, lines 24-25) comprising a polyisocyanate, at least one compound containing at least 2 reactive hydrogen atoms having a molecular weight of from 1000 to 8000, and catalysts, if desired (column 2, lines 40-46), wherein the foams can have a density of below 400 g/l, (column 2, lines 25-28), a shore A hardness of 52, and an elongation of 381% (see Table 3 and 4 of Volkert et al.). Volkert et al. do not elaborate on the tear propagation resistance. However, since the foams have the same tensile strength as instantly

claimed (See Table 4 of Volkert et al. and Table 2 of in the instant application), one of ordinary skill in the art would reasonably conclude that the foams of Volkert et al. have the same tear propagation as the instantly claimed invention.

8. Volkert et al. further teach that the at least one compound containing at least 2 reactive hydrogen atoms can comprise a graft polyol comprising mixtures of styrene and acrylonitrile in a weight ratio of from 90:10 to 10:90, which is used in a polyether polyol (column 4, lines 3-10). Volkert et al. further teach that polyester polyols may also be used as the at least one compound containing at least 2 reactive hydrogen atoms, which are prepared from organic dicarboxylic acids, including maleic acid, or their corresponding dicarboxylic acid anhydrides (maleic anhydride, pertaining to the macromer of instant claim 14). Volkert et al. further teach that the foam is used in shoe soles (column 6, lines 12-20).

9. Volkert et al. do not expressly teach the use of a catalyst comprising bismuth carboxylate in an amount of from 0.2 to 2% by weight based on the total weight of component b), and at least one tertiary amine. Volkert et al. also do not expressly teach that bismuth carboxylate is added as the sole organic metal catalyst to the reaction of the components a) and b), that the bismuth carboxylate results from carboxylic acids having from 6 to 12 carbon atoms, that the bismuth catalyst comprises bismuth neodecanoate, bismuth-2-ethylhexanoate or bismuth octanoate.

10. However, Burkhardt et al. teach polyurethane compositions comprising polyisocyanate, polyols, and a bismuth catalyst (paragraph [0007] comprising bismuth octoate or bismuth neodecanoate (paragraph [0022]), said catalyst of which are

prepared in an inert medium such as a solvent (paragraph [0025]), said solvent of which can comprise neodecanoic acid (pertaining to instant claim 19). The composition may further comprise a tertiary amine catalyst (paragraph [0034]). Burkhardt et al. teach examples in which bismuth is present as the sole organometallic catalyst (see paragraph [0047]). The bismuth catalyst is present in an amount of 0.5% by weight based on the weight of the polyols present based on: 259 g polyol Accalim® 4200N and 517 g of polyol Caradol® MD34-02 were used to prepare the isocyanate terminated polyurethane prepolymer, of which 0.06% by weight was bismuth compound.  $(259 + 517) = 776$ ;  $0.0006 \times 776\text{g} = 0.46\%$  bismuth catalyst. See examples 1-9, paragraphs [0047]-[0048]).

11. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the bismuth catalyst compound taught by Burkhardt et al. in the composition of Volkert et al. because catalysts that comprise tin compounds in combination with tertiary amines account for toxicological concerns. Bismuth catalysts, particularly bismuth carboxylates such as bismuth octanoate, have a far lower acute toxicity than tin catalysts and are given distinct preference over tin catalyst (paragraphs [0002]-[0003]).

12. Furthermore, in view of Burkhardt's recognition that bismuth carboxylate catalysts and tin catalysts are equivalent and interchangeable, it would have been obvious to one of ordinary skill in the art to substitute tin catalysts with bismuth carboxylates and thereby arrive at the present invention. Case law holds that the mere substitution of an equivalent (something equal in value or meaning, as taught by

analogous prior art) is not an act of invention; where equivalency is known to the prior art, the substitution of one equivalent for another is not patentable. See *In re Ruff* 118 USPQ 343 (CCPA 1958).

### ***Response to Arguments***

13. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARA NEGRELLI whose telephone number is (571)270-7338. The examiner can normally be reached on Monday through Friday 8:00 am EST to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571)272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KARA NEGRELLI/  
Examiner, Art Unit 1796

/Randy Gulakowski/  
Supervisory Patent Examiner, Art Unit 1796